

# Medical Office Systems, LLC

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## March 2011 Newsletter

### Facebook and High-Performance Computing Revisited

**Wouldn't you know...?** One week after my February newsletter about Facebook and the lack of security features, Facebook announced a secure login upgrade. This month, we revisit that topic and High-Performance Computing.

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### Facebook Security Revisited (from February 2011)

In late January, Facebook.com announced a major upgrade to their login system and website browsing in general. I like to think my criticisms prompted them to do it, but alas I cannot take credit. The credit goes to a US security researcher/programmer named Eric Butler. He developed a program named "Firesheep" as a demonstration project to expose security flaws in Mozilla's Firefox browser. In short, Firesheep can capture your entire Firefox browser session, exposing not only what web pages you were browsing, but also any login ID's and passwords you used. It worked particularly well on unprotected social media websites. [Web Extra: unsecure vs. secure login examples.](#)

To combat this method of hijacking, Facebook was forced to develop secure login and secure browsing using the "https" protocol. This commonly-used method of encrypting internet traffic prevents spying and hijacking like Firesheep and other programs of the same ilk. You will know your login is protected when you see the "Lock" icon in your browser

Facebook will roll out the upgrades in stages, beginning in February 2011. The overall process will take a few months; Facebook did not specify an exact date for completion. For now, using the secure "https" login is optional, but eventually will be mandatory. There will be some slowdown in the login and browsing process (encryption takes some time), but the security benefit is well worth the extra few seconds. Score one for better security.

### High-Performance Computing (May 2010) And RAID systems (June 2010)

One of the weakest links inside your PC is the hard disk – it stores all your data, and contains the programs that run your computer when you start it up. The reason it is the weakest link is because it has to work within strict tolerances, and has a lot of moving parts. There is the disk itself, which is powered by an electric motor and spins at 7200rpm or higher. Then there are bearings, and servos that move the read-write arm back and forth across the platter. Hard disks also use a lot of power – not a big deal for desktops, but in a laptop it is a huge deal. Up till recently, any improvement in storage speed was based on having tighter tolerances, and better materials to make the moving parts more reliable. Even so, the standard hard disk is still the slowest part of your computer – it just can't keep up with the processor.

Technology marches on, and now there is a completely different way to store data: solid state disks (SSD). If you have a portable music player, USB portable "flash disk" or "thumb drive", you know the concept. SSD is the same idea taken to a higher level – replace the PC's mechanical hard disk with a solid state hard disk. The advantages are numerous:

1. No moving parts = better reliability
2. Does not need electricity when not in use
3. Faster data read/write/boot-up times (from 10 to 17 times faster)
4. Greatly reduced power consumption = a real benefit for laptop battery life

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There are two elements holding back adoption of SSD: cost and capacity.

As of this writing, the cost per megabyte of SSD storage is much higher than the traditional mechanical hard disk. I comparison shopped for a 250GB disk – the traditional hard disk was \$90, the SSD was \$370. So, there is a way to go on price competitiveness. The capacity of the largest mechanical hard disks available now is approaching 2 Terabytes, while the largest current SSD is only 320 Gigabytes.

Given those two factors, SSD is not yet a replacement for large storage needs. However there are two niche areas where SSD is making spectacular inroads: used as a PC “boot-only disk”, and as a megafast RAID-0 hard disk system. The goal is ultimate performance, so the extra cost is not for the faint of heart, but if your need for speed can match your budget, this is the way to go.

Used as a boot-only disk (only programs are stored on it – data is stored on a separate hard disk) your PC essentially becomes “instant on”, like any other appliance in your home. Further advantage is gained while using the computer, as in the normal course of operation, programs must often refer back to the boot disk for information and settings. The bottom line is your PC boots up instantly and operates much faster.

In a RAID-0 disk system SSD shines as the state-of-the-art speed solution. [Quick Review: In a RAID-0 system, multiple disks do the data storage. Since saving to a hard disk is the slowest operation, splitting the file among two, three, or more drives cuts file save times in proportion to the number of disks.] Enter SSD RAID-0 drives – they can “absorb” the data sent from the processor almost instantly while you and the processor can go on to other tasks. The performance improvement is tremendous, and SSD RAID-0 is becoming a requirement for professional photographers who need to edit or retouch monster size photo and video files.

### **SSD Outlook:**

Overall SSD has a few more years to go before it becomes “mainstream” technology. It is viable as a niche performance solution today.

Currently few PC manufacturers offer SSD Boot disks, so to have a SSD boot disk will mean some “hands-on” customization. Eventually the price and capacity issues will be solved, and then the traditional Hard Disk will fade away in favor of an all-SSD solution. My guess is laptops will be the first to get SSD technology, as the power savings and increased battery life will make the higher cost tradeoff more palatable.

SSD RAID-0 by contrast has already gained a large following with professional photographers and others who edit large photo or graphic files. The price is steep, but the productivity gains from saving files 3 to 4 times faster are worth it. As prices drop further, the market will expand beyond professional users to home users who want ultimate performance and need to save time.

As always, I welcome questions and comments on this and any other articles. Contact me by phone, FAX or email anytime. Thanks!

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